

## **Raptors and Owls (Aves: Falconiformes et Strigiformes) in the Archaeological Record of Bulgaria**

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As meat and flesh-eating birds, raptors and owls have been attracted by the food wastes and rubbish of human settlements since the most ancient times. As it is known, most of the species of these groups are petrophylous. They prefer rock massifs, caves or massive human buildings as a nesting habitat. Other species (especially owls) inhabit tree-hollows or crevices and hollows under roofs of buildings in the settlements. In this way, during the historical epoch, some of them became synanthropic species.

According to various data, many Falconiform species and the Eagle Owl also, have been trained as birds for hunt since deep antiquity. Other species as large and powerful birds have been sacred, other, contrary — sacrificed. In some cases, their wings, primary feathers, feet, claws or bills have been used as talismans or elements of decoration.

In spite of the wide variety of links between the Man and the raptors and owls, it is a fact, that we have a very limited information about species composition, distribution and significance of these birds in the ancient times. The present review summarizes all available data on raptors and owls from the present-day Bulgarian lands.

### **Material and Methods**

4685 bones and bone fragments of birds were collected from 29 archaeological sites of the country. Bones of raptors and owls were established only in 16 of them. These sites cover a very lengthened period — 31 900 B.P. to 10th century A.D.: 1. Temnata Douпка Cave (31 900 — 10 400 B.P.), 2. Kovatchevo (ca. 9 000 B.P.), 3. Topolnitsa (ca. 8 000 B.P.), 4. Kazanluk (8 000 B.P.), 5. Sozopol (5 000 — 3 000 B.P.), 6. Kabyle (3 000 B.P. — 5th century A.D.), 7. Bagatchina (4 000 B.P. — 1st century A.D.), 8. Arbanas (1st — 3rd century A.D.), 9. Malak Preslavets (1st — 4th century A.D.), 10. Ratiaria (2nd — 4th century A.D.), 11. Abritus (3rd — 4th century A.D.), 12. Nicopolis-ad-Istrum (2nd — 6th century A.D.), 13. Garvan (4th — 11th century A.D.), 14. Preslav (9th — 10th century A.D.), 15. Pliska (10th century), 16. Hissarluka (10th — 12th century A.D.) (Fig. 1).

The species determination of bone remains was carried out by comparison with the corresponding specimens (both, morphologically and dimensionally) of the com-



Fig. 1. Locations of the sites where the bones of raptors and owls are collected.

parative osteological collections of birds at the National Museum of Natural History in Sofia and the Paleontological Institute of the Russian Academy of Sciences in Moscow. The list of the species established is given in Table 1. Data concerning nesting habitat preferences and recent populations of the species follows БОТЕВ, ПЕШЕВ (1985), СИМЕОНОВ и др. (1990) and NANKINOV et al. (1991).

## Results and Comments

### Species composition

The two groups include 77 bones — 1.64% of all material. The raptor group is represented by 65 bones (84.4%), while the owls' share is 12 bones (15.6%). A total of 29 taxa (21 species — 17 raptors and 4 owls) are recorded. Thus, 43.2% of the recent fauna of raptors (37 species) and 40.0% of the recent fauna of owls (10 species) are represented in the archaeological sites investigated. These finds are the first fossil/subfossil record in Bulgaria of the species listed in Table 1.

### Raptors (Order Falconiformes)

Honney Buzzard — *Pernis apivorus* L.

Material: phal. I dig. II manus. The bone belongs to a medium sized Accipitrid bird and morphologically differs from *Buteo*, *Accipiter*, *Hieraetus*, *Circus*, *Milvus*, and oth-

Table 1

**Species composition and distribution of bone remains of raptors and owls  
by archaeological sites from Bulgaria**

No	Species	Sites	Total number of bones
1.	<i>Circus cyaneus</i>	1—1 <sup>1</sup>	1
2.	<i>Pernis apivorus</i>	2—1	1
3.	<i>Accipiter gentilis</i>	16—4, 12—2, 9—1	7
4.	<i>Accipiter nisus</i>	12—1, 14—1	2
5.	<i>Buteo lagopus</i>	2—1	1
6.	<i>Buteo buteo</i>	16—2, 6—1, 12—1	4
	<i>Buteo</i> sp.	12—1	1
7.	<i>Hieraetus fasciatus</i>	16—5, 14—2	7
8.	<i>Aquila pomarina</i>	1—1	1
9.	<i>Aquila chrysaetus</i>	9—1, 4—1, 1—1	3
	<i>Aquila</i> sp.	13—1	1
	<i>Aquila</i> / <i>Haliaetus</i>	9—2	2
10.	<i>Gypaetus barbatus</i>	12—1, 15—3	4
11.	<i>Aegypius monachus</i>	1—1	1
12.	<i>Gyps fulvus</i>	6—1, 7—1, 10—1, 14—1	4
13.	<i>Circaetus gallicus</i>	11—1, 14—2	3
	Accipitridae gen.	1—1, 3—1, 5—1, 12—2, 6—1	6
14.	<i>Falco tinnunculus</i>	1—7	7
15.	<i>Falco vespertinus</i>	1—1	1
16.	<i>Falco subbuteo</i>	1—1	1
17.	<i>Falco cherrug</i>	6—1	1
	<i>Falco</i> sp.	1—3	3
	Falconidae gen.	1—1	1
	Falconiformes fam.	12—2	2
18.	<i>Bubo bubo</i>	1—1, 4—1, 8—1	3
19.	<i>Athene noctua</i>	12—1	1
20.	<i>Strix aluco</i>	1—2, 12—1, 14—1, 16—1	5
21.	<i>Asio otus</i>	1—1	1
	? <i>Aegolius</i>	1—2	2
Total			77

<sup>1</sup> First figure corresponds to the number of the site, the second — to the number of collected bones of birds.



Fig. 2. *Accipiter nisus* — tibiotarsus sin. dist. ad. from Malak Preslavets.

er European species of the Accipitridae family. It is very similar to the analogous bone of Honey Buzzard. Nowadays this species is endangered in Bulgaria and its total population numbers about 200 nesting pairs. During the breeding season it inhabits large beech forests in the plains and mountains with meadows and pastures. A migratory summer visitor of the country.

#### Goshawk — *Accipiter gentilis* L.

Material: coracoid sin., ulna sin., radius dex. dist., phal. I dig. II manus sin., femur dex., femur dex. prox., femur sin. dist. The Goshawk's population in Bulgaria is estimated about 1000 breeding pairs. Its conservation status is 'Endangered' also, because of the deforestation of large parts of the country's lowlands. Inhabits thinned out forests with meadows close to agricultural lands and pastures. It is one of the common species trained in falconry in the past and at present as well (STERNBERG, 1969).

#### Sparrowhawk — *Accipiter nisus* (L.)

Material: ulna sin. prox., tbt sin. dist. (Fig. 2). A species commonly used in falconry since antiquity to the present days. It is threatened in the Bulgarian nature today. Its total population is 500 to 1 000 pairs in the country. Inhabits broad-leaf, mixed and coniferous forests in the Bulgarian mountains during the nesting period. Out of breeding season, it may be observed in the hill regions, open fields, parks, etc.

#### Rough-legged Buzzard — *Buteo lagopus* (Pontopp.)

Material: cmc sin. A northern Euroasiatic species, which only winters in Bulgaria. Visits the country between October and March. Prefers agricultural lowlands with scattered trees and bushes. Sometimes it can be recorded during the spring and fall migration also.

#### Buzzard — *Buteo buteo* (L.)

Material: humerus dex. dist., cmc dex. dist., tmt sin., tmt dex. The most common raptor in the Bulgarian nature. Wide spread in the endings of deciduous, mixed and coniferous forests, openlands with scattered trees all over the country. The total population is estimated 800 to 1 000 breeding pairs.

Bonelli's Eagle — *Hieraetus fasciatus* (Viell.)

Material: coracoid dex., humerus dex., cmc dex., cmc sin., tbt dex, tbt sin. dist., synsacrum. A very rare raptor in the recent Bulgarian avifauna. There are only 5 reliable nesting sites during the last 30 years. Bulgarian population consists of no more than 5 irregular breeding pairs. In the nesting season it prefers thinned deciduous woods, chiefly in the mountains. A rare bird with mediterranean distribution in Europe. The seven bones belong to two adult specimens (Table 1). Bonelli's Eagle is highly appreciated in falconry (STERNBERG, 1969).

Lesser Spotted Eagle —  
*Aquila pomarina* Brehm

Material: coracoid dex. prox. An endangered species, inhabiting deciduous and mixed forests with meadows and river valleys, pastures and swamps. The deforestation of many regions of the country is the main cause of its present-day population decline. In the last decade a total of 50 pairs nest in Bulgaria. The find comes from the Upper Paleolithic (BOEV, 1994).

Golden Eagle — *Aquila chrysaetos* (L.)

Material: cmc sin. prox. (Fig. 3), tmt sin., phal. I hallucis sin. A residential and wandering rare species in Bulgaria. In the past and the present, it is one of the most preferred raptors in the falconry throughout Asia and Europe (STERNBERG, 1969). Nowadays 120 to 200 pairs nest in Bulgaria.

Eagle — *Aquila* sp.

Material: ulna dex. Because of the lack of comparative material the find was not determined further.

Eagle — *Aquila* / *Haliaetus*

Material: cmc. dex. prox., cmc dex. dist. Both indetermined finds belong to two different species.



Fig. 3. *Aquila chrysaetos* — carpometacarpus sin. prox. ad. from Malak Preslavets (left), and *Gyps fulvus* — carpometacarpus dex. dist. ad. from Ratiaria (right).



Lammergeier — *Gypaetus barbatus* (L.)

Material: 2 ulna sin., 2 radius sin. The four bones belong to at least 3 adult specimens. The Lammergeier is a disappeared species in Bulgaria. Its last breeding pairs were observed in 1961 in the Eastern Stara Planina Mts (СИМЕОНОВ, 1962). Recently in the spring of 1994, immature individuals were recorded in the Eastern Rhodopes Mts (ХРИСТОВ, ХРИСТОВА, 1994). Prefers large rock massifs with vertical walls, precipices and wide rock platforms.

Black Vulture — *Aegypius monachus* (L.)

Material: cmc sin. prox. An endangered species in Bulgaria considered disappeared up to 1994, when a nesting pair has been recorded in the Eastern Rhodopes Mts (АНОНИМ., 1994). The large old deciduous forests in the plains and foothills of mountains were the main nesting habitats of the species. The finds originate from the Paleolithic deposits of Temnata Douпка Cave.

Griffon Vulture — *Gyps fulvus* Habl.

Material: ulna dex., ulna dex. prox., cmc. dex., cmc dex. dist. (Fig. 3). At present the northern limit of nesting area in Europe pass through Bulgaria, where the species is nearly to disappearance. No more than 18 nesting pairs are survived in the Bulgarian part of the Eastern Rhodopes Mts (ЯНКОВ, ПРОФИРОВ, 1991). An endangered species preferring large rock massifs, vertical rock or ground walls in the plains and mountains.



Fig. 4. *Circetus gallicus* — ulna dex. dist. ad. from Preslav.

Hen Harrier — *Circus cyaneus* (L.)

Material: sternum, pars cranialis. A rare raptor in Bulgaria. The total population is up to 20 breeding pairs. Prefers fields, meadows, valleys, swamps. The only find is of Paleolithic age.

Short-toed Eagle — *Circetus gallicus* (Gm.)

Material: 2 ulna dex. dist. (Fig. 4), ulna dex. prox. The three bones belong to 3 specimens. The Short-toed Eagle is a migratory breeding species in Bulgarian old thinned out deciduous and sometimes — coniferous forests, close to openlands, desolate areas, pastures etc. Endangered species.

Hawk — Accipitridae gen.

Material: coracoid dex. dist., cmc sin., phal. I dig. I pedis dex., phal. I dig. II pedis sin., ulna sin. prox.,

humerus sin. These finds remain determined up to family level, because of the bad preservation, small fragments preserved, or lack of the comparative material.

Kestrel — *Falco tinnunculus* L.

Material: coracoid dex., humerus sin. dist., 2 ulna sin., cmc sin. prox., tbt sin., tmt dex. prox. The Kestrel is the most numerous falcon in Europe and Bulgaria. The seven bones are of Paleolithic age and probably they have not been directly related to the human activity.

? Red-footed Falcon — *Falco cf. vespertinus* L.

Material: ulna sin. The slight differences in the shape of the bone differ it from the similar sized *F. tinnunculus* and drive at Red-footed Falcon. It is a rare species in the recent Bulgarian fauna. There are no reliable data about its nesting in the country during the last 40 years, but NANKINOV et al. (1991) suppose that 20 pairs nest in the country.

Saker Falcon — *Falco cherrug* Gray

Material: femur dex. Possibly, the most preferable for falconry falcon and raptor at all. The find came from a Roman town in SE Bulgaria (Fig. 1). The Saker Falcon is endangered resident and migratory species in Bulgaria. Its nests are built chiefly on rocks in the deciduous and mixed forests close to openlands, fields, defiles, etc. Fifteen to 50 pairs have been nested in the country during the last decade.

Falcon — *Falco* sp.

Material: cmc dex. prox., cmc sin., ulna sin. dist. Three undetermined further bone fragments of small falcons of Kestrel's size.

Falcon — Falconidae gen.

Material: ulna sin. dex. A fragment of very bad preservation, undetermined further.

Falconiform bird — Falconiformes fam.

Material: cmc sin. dist., ulna sin. dist. These finds are also badly preserved and represent very small distal portions.

Owls (Order Strigiformes)

Eagle Owl — *Bubo bubo* (L.)

Material: humerus sin., fibula dex., tmt sin. prox. These bones belong to 3 adult individuals. The Eagle Owl is an endangered species in Bulgaria. It nests sporadically

in large rock massifs in the plains and mountains up to 1 400 m a.s.l. (СИМЕОНОВ, МИЧЕВ, 1984). The most preferred owl for training in hunt.

#### Little Owl — *Athene noctua* (Scop.)

Material: cmc sin. prox. The most numerous owl in Europe and Bulgaria. Prefers rock terrains, hollow trees, buildings, etc. A synanthropic species in recent avifaunas.

#### Tawny Owl — *Strix aluco* L.

Material: mandibula dex. prox., coracoid dex. prox., humerus dex. dist., tbt dex., tmt sin. dist. A common owl in Bulgarian old beech and beech-spruce forests close to meadows, pastures etc. A resident and wandering species. Often inhabits attic premises in old buildings in the towns or in tree hollows in the fields.

#### Long-eared Owl — *Asio otus* L.

Material: tmt. sin. dist. This Paleolithic find probably is not related to the activity of the primitive man. The Long-eared Owl is a regular inhabitant of cities and villages at present.

#### ? Owl — *Aegolius*

Material: cmc dex. dist., femur dex. prox. Both finds are not determined further because of the absence of comparative material of that genus. The dimensional characteristics suggest both *Athene* and *Aegolius* genera, but morphological features differ them from *Athene* (БОЕВ, 1994). Tengmalm's Owl is a resident and wandering rare species in Bulgarian fir forests in the mountains up to 1 300 m a.s.l.

### Probable utilisation of Raptors and Owls by Man

There are a lot of informations that the eagles' wings or only their primary feathers have been used in many regions of Bulgaria as an impressive decoration of men's hats during the various rites, traditional holidays, etc. (ГЕОРГИЕВ, 1987). Some authors indicate that the feathers of eagles have been highly appreciated as stabilizers of arrows in the ancient times up to Medieval Ages (ЮХАС, 1983). It is interesting to be mentioned that most of the finds of large raptors (eagles and owls) chiefly represent bones of the wings — ulna, radius and carpometacarpus. Fifteen of total of 23 bones of Griffon and Black Vultures, Lammergeier, Golden, Lesser-spotted, Bonelli's, and Short-toed Eagles, are bones of the wings. Thus 65.2% of the finds, inspite of the fact that the forelimbs' bones are more fragile (БОЕВ, 1986) are bones of wings. Some of the long bones of the wings are cut in their endings, which indicates their usage for some unknown purposes.

Some of the large eagles and vultures with their effective plumage and powerfull habitus probably have been kept in the special cages or voliers for decoration in the gardens and parks of velthy men in the Roman epoch and later.



The falconry in Bulgaria and SE Europe has a very long history. We can adopt also that some raptors and owls killed by men, have been used as food for some domestic animals (dogs and cats), or even by men. In some parts of Europe, the eagles' meat has been used as food by men. The meat of the White-tailed Eagle, *Haliaeetus albicilla* (L.), for example, was cooked for food by roasting in Byelorussia in 10-th century A.D. (N. Burchak-Abramovich — pers. comm.). No traces of burning are found on the bones of our material, but we do not exclude such usage of raptors and owls in the ancient Bulgaria too.

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# **Дневни и нощни грабливи птици (Aves: Falconiformes et Strigiformes) по археологични данни от България**

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(Резюме)

Изследвани са 77 бр. кости и костни фрагменти от птици, съставляващи 1.64% от общи орнитоархеологичен материал (4685 бр.), събран в 29 гревни селища в България. Съотношението между дневни и нощни грабливи птици е 84.4:15.6%. Установени са общо 29 таксона от двата разряда, което представлява 43.2% от съвременната фауна на дневните грабливи птици и 40.0% от състава на совите.

От първите са установени: осояд, голям и малък ястреби, белоопашат и обикновен мишелов, ястребов, малък креслив и скален орел, брадат, белоглав и черен лешояд, полски блатар, орел змияр, ловен сокол и черношипа и вечерна ветрушки.

Совите са представени от: бухал, кукумявка, горска улулица, горска ушата сова и ? пернатонога кукумявка.

Допуска се, че част от видовете са били използвани като източник на пера и кости, а други — като обучени за лов птици. Няма данни за използване на месото на грабливите птици за храна от човека и находките на повечето от видовете са с неустановен произход. Въпреки това, те са указание за силното присъствие на тези птици в бита на хората от гревните български земи.